PRACTICAL WORK SYLLABUS [1]

1. Information about the program

1.1 Higher education institution	**Politehnica University Timisoara**
1.2 Faculty [2] / Department [3]	ELECTRONICS, TELECOMMUNICATIONS AND INFORMATION TECHNOLOGIES / Applied Electronics
1.3 Field of study (name/code[4])	Electronics, Telecommunications and Information Technologies Engineering /202010
1.4 Study cycle/Type of study program [5]	Master / Research Master
1.5 Study program (name/code/qualification)	AUTOMOTIVE ELECTRONIC SYSTEMS/ 20/20/10 / 2152

2. Information about discipline

2.1a Type of practical work[6]			Research practice 2				
2.1b Type of practical work in Romanian			Practică de cercetare 2				
2.2 Coordinator (holder) of applied activities [7]			Prof. dr. ing. Gontean Aurel				
2.3 Year of study [8]	1	**2.4** Semester	2	**2.5** Type ofe evaluation	V	**2.6** Regime of discipline [9]	DOB
2.7 Academic year[10]	2025-2026	**2.8.** Cod of discipline	M239.25.01.S6				

3. Total estimated time (direct practical activities, partially assisted activities)

3.1 Number of hours fully assisted/week	10
3.2 Total number of hours fully assisted/sem.	14.29
3.3 No. of credits	8

4. Prerequisites (where applicable)

4.1 Curriculum	• The topics addressed in the previous semester within the course Research Practice 1 are continued, and a related or interdisciplinary research area may be selected .
4.2 Learning outcomes	• Not the case

5. Mission of the Practical Work and conditions for its accomplishment[10]

5.1 Mission	• The development of the student's research skills.
5.2 Conditions required to carry out the practical work	• It is carried out in the institution's own laboratories, in research laboratories, or in partnership with the relevant industrial sector.

6. Learning outcomes [11] acquired through practical work in accordance with the mission

Knowledge	• C4. The student/graduate understands the techniques for preparing project sketches and technical documentation, integrated into the approval and validation processes of engineering projects. • C5. The student/graduate explains the principles and automation technologies applicable to industrial processes. • C6. The student/graduate is familiar with control systems and instrumentation equipment used in industrial monitoring. • C7. The student/graduate explains the mathematical and physical methods used in the modeling and analysis of industrial processes. • C8. The student/graduate describes the procedures for creating sketches and technical documentation for the design and validation of monitoring equipment.
Skills	• A5. The student/graduate prepares technical reports and project documentation in accordance with engineering standards. • A6. The student/graduate applies testing and validation procedures for electronic products, systems, and components.

	• A7. The student/graduate analyzes and interprets experimental data using statistical techniques and engineering methods. • A8. The student/graduate uses dedicated software for data analysis, interpreting information derived from industrial processes. • A9. The student/graduate designs control systems for the monitoring and optimization of industrial processes. • A10. The student/graduate tests sensors by applying procedures for verifying and validating their performance. • A11. The student/graduate uses remote-control equipment, integrating it into monitoring systems. • A12. The student/graduate prepares project sketches and diagrams for industrial monitoring equipment and systems.
Responsibility and autonomy	• RA5. The student/graduate assumes responsibility for preparing and communicating technical reports to stakeholders. • RA6. The student/graduate engages in lifelong learning, updating their competencies in line with scientific and technological progress. • RA7. The student/graduate assumes responsibility for the quality of design and the functionality of industrial monitoring equipment. • RA8. The student/graduate demonstrates autonomy in using analysis software and in making decisions related to the design and testing of equipment. • RA9. The student/graduate coordinates multidisciplinary teams for the design, implementation, and testing of monitoring systems.

7. Objectives of the discipline (related to the learning outcomes presented at point 6)

- Development of the student's research skills
- Identification and accurate formulation of the previously chosen topic
- Evaluation of existing aspects in the field of the topic and the proposal of further developments
- Identification of areas where specific innovative solutions can be introduced
- Understanding the principles for preparing a research report
- Carrying out the management of the research project
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8. Topics and activities for practical work[12]

8.1 Topics for practical work	
Documentation and critical analysis of the current state of the art in the field of a specific research topic. A topic specific to the field, established through dialogue with the supervisor, possibly selected from a list of topics proposed by the academic staff involved in this master's program or by partner companies.	
8.2 Type of activities	**8.3** Duration
Scientific analysis and writing, implementation, presentation, and management of the research activity carried out through: -partially assisted activities	140

9. Student's assignments[13]

10. Evaluation

10.1 Evaluation criteria	**10.2** Evaluation methods	**10.3** Share of the final grade
Knowledge of specialized concepts and terminology	Examination by the supervisor	1/3
Deepening the research methodology	Examination by the supervisor	1/3
Analytical capacity. The format for writing the report	Examination by the supervisor	1/3

10.4 Minimum performance standard (minimum amount of knowledge necessary to pass the discipline and the way in which this knowledge is verified[14])
• The student will be able to develop and comparatively analyze a solution to a research problem, including validating it through simulation or experiment.

Date of approval in the Faculty Council[15]	**Date of completion**	
	27.09.2025	
Dean	**Head of Department**	**Coordinator of applied activities**
(signature)	**(signature)**	**(signature)**